



## UT4810D

Power MOSFET

### N-CHANNEL 30-V (D-S) MOSFET WITH SCHOTTKY DIODE

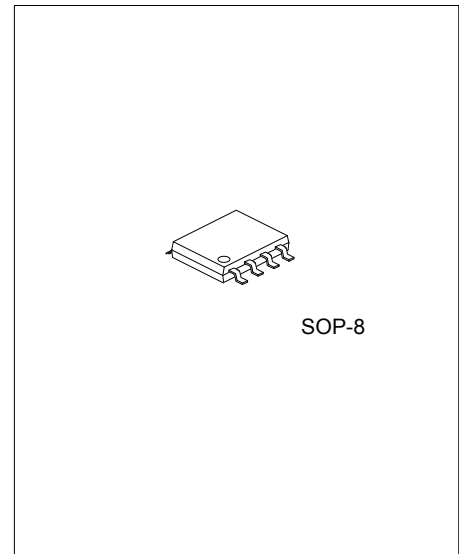
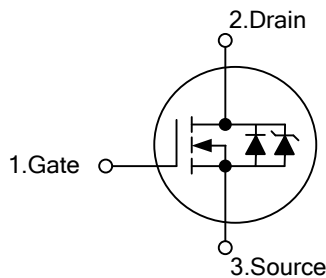
#### DESCRIPTION

As trench FET Power MOSFETS, N-channel MOSFET with schottky diode, the UTC **UT4810D** shows fast switching and low gate charge features. And it can be used in such applications: DC-DC logic level, low voltage and battery powered.

#### FEATURES

- \*  $R_{DS(ON)} < 13.5m\Omega @ V_{GS} = 10 V$
- \*  $R_{DS(ON)} < 20m\Omega @ V_{GS} = 4.5 V$
- \* Low capacitance
- \* Low gate charge
- \* Fast switching capability
- \* Avalanche energy specified

#### SYMBOL



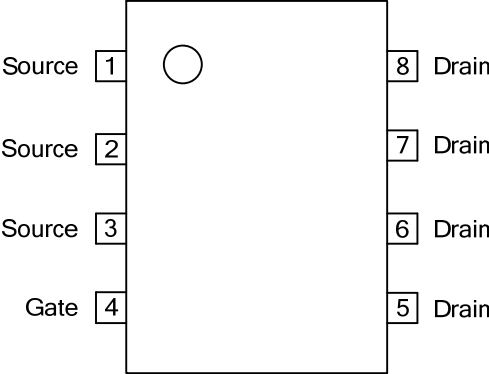
Lead-free: UT4810DL  
Halogen-free: UT4810DG

#### ORDERING INFORMATION

Ordering Number			Package	Packing
Normal	Lead Free	Halogen Free		
UT4810D-S08-R	UT4810DL-S08-R	UT4810DG-S08-R	SOP-8	Tape Reel
UT4810D-S08-T	UT4810DL-S08-T	UT4810DG-S08-T	SOP-8	Tube

<p>UT4810DL-S08-R</p> <p>(1)Packing Type</p> <p>(2)Package Type</p> <p>(3)Lead Plating</p>	<p>(1) R: Tape Reel, T: Tube</p> <p>(2) S08: SOP-8</p> <p>(3) G: Halogen Free, L: Lead Free, Blank: Pb/Sn</p>
--	---

■ PIN CONFIGURATION



■ ABSOLUTE MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage	MOSFET	$V_{DSS}$	30	V
	Schottky		30	
Gate-Source Voltage	MOSFET	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current ( $T_J=150^\circ\text{C}$ )	MOSFET	$I_D$	7.5	A
Pulsed Drain Current	MOSFET	$I_{DM}$	50	A
Continuous Source Current	MOSFET	$I_S$	1.25	A
Average Forward Current	Schottky	$I_F$	2.4	A
Pulsed Forward Current	Schottky	$I_{FM}$	40	A
Avalanche Current	L=0.1mH	$I_{AS}$	25	A
Single-Pulse Avalanche Energy		$E_{AS}$	78	mJ
Power Dissipation	MOSFET	$P_D$	1.38	W
	Schottky		1.31	
Junction Temperature		$T_J$	+150	$^\circ\text{C}$
Storage Temperature		$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

Note Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

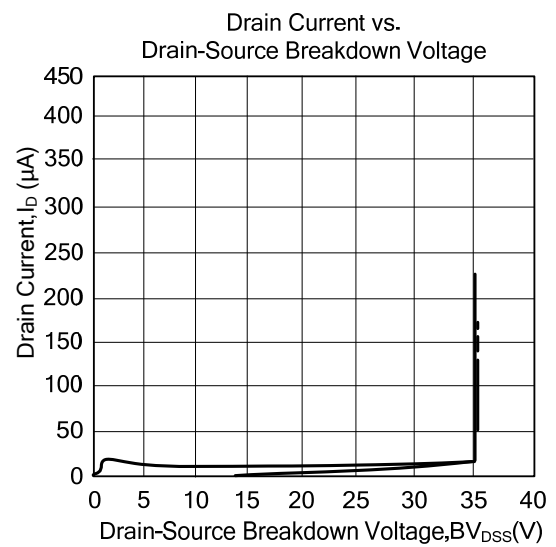
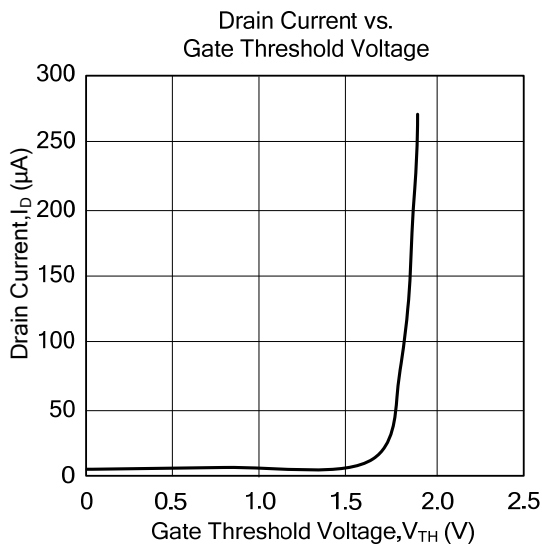
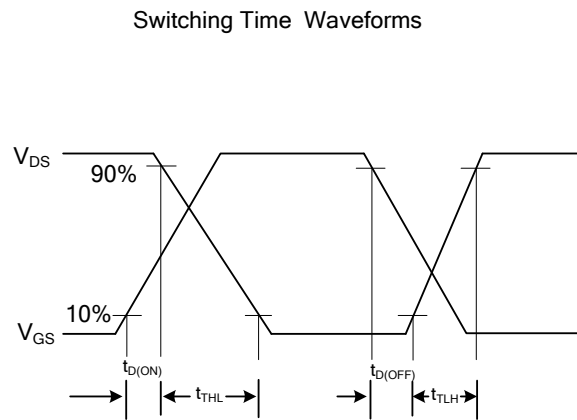
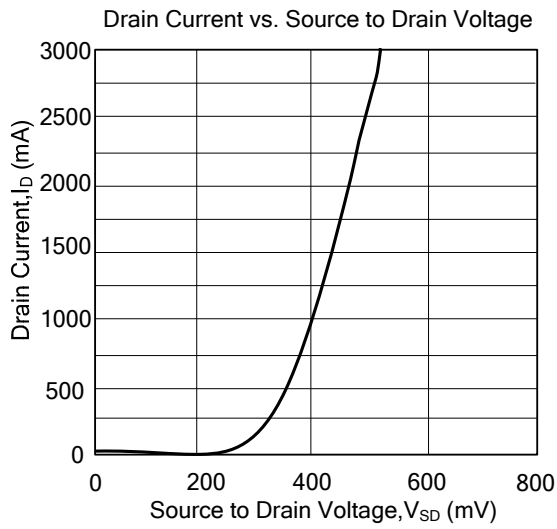
■ THERMAL DATA

PARAMETER		SYMBOL	MIN	TYP	MAX	UNIT
Junction-to-Ambient	MOSFET	$\theta_{JA}$		73	90	$^\circ\text{C/W}$
	Schottky			77	95	

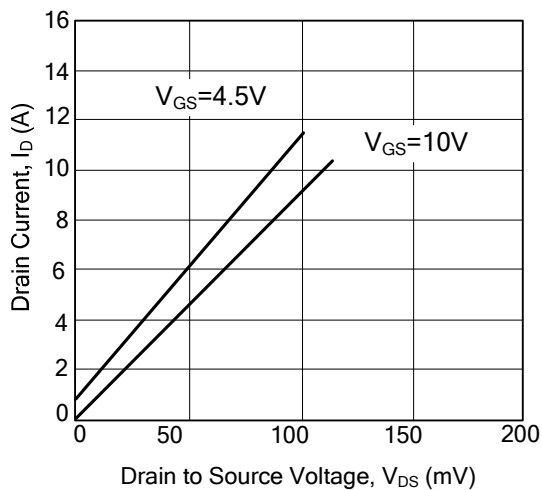
■ ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
<b>OFF CHARACTERISTICS</b>						
Zero Gate Voltage Drain Current (MOSFET+ Schottky)	$I_{DSS}$	$V_{DS}=30\text{V}, V_{GS}=0\text{V}$		0.007	0.100	mA
Gate-Body Leakage Current	$I_{GSS}$	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			$\pm 100$	nA
<b>ON CHARACTERISTICS</b>						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1		3	V
On State Drain Current	$I_{D(ON)}$	$V_{DS}\geq 5\text{V}, V_{GS}=10\text{V}$	20			A
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10\text{V}, I_D=10\text{A}$		10.5	13.5	m $\Omega$
		$V_{GS}=4.5\text{V}, I_D=5\text{A}$		16	20	
<b>DYNAMIC PARAMETERS</b>						
Gate Resistance	$R_G$		0.2	0.55	0.9	$\Omega$
<b>SWITCHING PARAMETERS</b>						
Turn-ON Delay Time	$t_{D(ON)}$	$V_{DD}=15\text{V}, R_L=15\Omega, R_G=6\Omega, I_D\approx 1\text{A}, V_{GEN}=10\text{V}$		17	30	ns
Turn-ON Rise Time	$t_R$			13	20	ns
Turn-OFF Delay Time	$t_{D(OFF)}$			45	90	ns
Turn-OFF Fall-Time	$t_F$			15	25	ns
Total Gate Charge	$Q_G$	$V_{DS}=15\text{V}, V_{GS}=5\text{V}, I_D=10\text{A}$		14.5	22	nC
Gate Source Charge	$Q_{GS}$			6.3		nC
Gate Drain Charge	$Q_{GD}$			4.7		nC
<b>SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Diode Forward Voltage	$V_{SD}$	$I_S=3.0\text{A}, V_{GS}=0\text{V}$		0.485	0.53	V
Body Diode Reverse Recovery Time	$t_{RR}$	$I_F=3.0\text{A}, di/dt=100\text{A}/\mu\text{s}$		36	70	ns

## TYPICAL CHARACTERISTICS



Drain-Source On-State Resistance Characteristics



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.